



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/642,061	08/18/2000	Blake Lewis	103.1035.01	6742

22883 7590 08/03/2005
SWERNOFSKY LAW GROUP PC
P.O. BOX 390013
MOUNTAIN VIEW, CA 94039-0013

EXAMINER

LE, MIRANDA

ART UNIT	PAPER NUMBER
----------	--------------

2167

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/642,061

Applicant(s)

LEWIS, BLAKE

Examiner

Miranda Le

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 24-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 24-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Amendment, filed 04/28/2005.
2. Claims 1-8, 24-45 are pending in this application. Claims 1, 26, 36 are independent claims. In the Amendment, claims 24, 34, 44 have been amended, no claims have been added, cancelled. This action is made Final.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless:

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-8, 25-31, 34-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Sekido et al. (US Patent No. 6,311,193 B1).

Sekido anticipated independent claims 1, 26, 36 by the following:

As to claims 1, 26, 36, Sekido teaches a method of capturing contains of file and directories in a file system, said file system comprising a set of storage blocks for plural of files in a mass storage system including steps of:

Art Unit: 2167

recording an active map (i.e. SS1 to SS3 have been used for identification for snapshot, col. 14, lines 8-21) in said file system (i.e. snapshot image in the system disc, col. 13, lines 16-17) of said storage blocks used by said plural files in said actives file system (col. 13, lines 13-29, col. 14, lines 8-21);

recording a consistency point (i.e. creating a snapshot holding the contents of the file at a specific point in time, col. 3, lines 8-9) in said file system including a consistent version of said plural files in said file system at a previous time (i.e. SS1 to SS3 Fig. 26, col. 14, lines 8-21), said consistency point include a copy of said active map at said precious time (i.e. the snapshot are arranged in a line in the order of time at which of them were created in Fig. 26a, col. 14, lines 21-48);

refraining from writing data (i.e. delaying the update of the data items in the logical blocks, col. 2, lines 60-61) to storage blocks in response to said active map and at least one said copy of said active map including in said consistency point (col. 2, line 53 to col. 3, line 21).

As to claims 2, 27, 37, Sekido teaches said step of refraining includes determining a logical union of said storage blocks used by one or more of said copies of said active map included in said consistency point (Fig. 35 shows the bit map 6 where 1s corresponds to valid block and 0s corresponds to invalid blocks. Fig. 36 shows a logical union of the blocks. Fig. 31 shows the bit map ST10 as the result of logical union blocks of ST1 and ST3, col. 17, lines 42-51, col. 18, lines 55-61, col. 19, lines 20-28).

As to claims 3, 28, 38, Sekido teaches said step of refraining includes determining a subset of said storage blocks used by one or more of said copies of said active map included in said consistency point (i.e. all the blocks in active map ST in Fig. 31 is a subset of storage blocks in SS1 in Fig. 21, col. 11, line 36 to col. 12, line 49).

As to claims 5, 30, 40, Sekido teaches said active map included in said consistency point (i.e. creating a snapshot holding the contents of the file at a specific point in time, col. 3, lines 8-9) is a snapmap (col. 8, lines 31-59).

As to claims 6, 31, 41, Sekido teaches the step of removing a root inode (i.e. parent SS) of said snapmap using a snap delete (col. 16, lines 23-44, Fig. 28).

As to claims 7, 32, 42, Sekido teaches steps of determining not to write to a block after said step of removing, provided a previous or next snapmap uses said block (i.e. the modification of a snapshot is permitted, col. 16, lines 23-44).

As to claims 25, 35, 45, Sekido teaches step of refraining from writing data to said storage blocks is accomplished by being responsive to said summary map (i.e. delaying update, col. 2, line 44 to col. 3, line 21).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2167

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4, 8, 29, 33, 39, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekido et al. (US Patent No. 6,311,193 B1), in view of Hitz et al. (US Patent No. 5,819,292).

As to claims 4, 29, 39, Sekido does not specifically teach "file system is a WAFL file system". However, Hitz teaches this limitation at col. 5, lines 48-59, col. 8, lines 16-39, col. 11, lines 6-27.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sekido with the teachings of Hitz to include "file system is a WAFL file system" in order to maintain a file system in a consistent state wherein WAFL always write new data to unallocated blocks on disk.

As to claims 8, 33, 43, Sekido does not explicitly teach "steps of copying modified data to a new block and saving old data in a current data block so as to implement a copy-on-write mechanism". However, Hitz teaches this limitation at col. 22, lines 4-16.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sekido with the teachings of Hitz to include "steps of copying modified data to a new block and saving old data in a current data block so as to implement a

Art Unit: 2167

copy-on-write mechanism” in order to identify the blocks that are used by both the active file system and the read-only copy so that new data written to the active file system does not overwrite ‘old’ data that is part of the done, and therefore, must not change.

Allowable Subject Matter

Claims 24, 34, 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 04/28/2005 have been fully considered but they are not persuasive.

Applicant argued that

(a) Sekido's reference does not teach/suggest claim 1's feature of “an active map in said file system of said storage blocks used by said plural files in said active file system; a consistency point in said file system including a consistent version of said plural files in said file system at a previous time, said consistency point include a copy of said active map at said previous time”, and “local address tag block” and “buffer management table” are not stored in the file system.

(b) Snapshot information in Sekido is not an “active map in said file system of said storage blocks used by said plural files in said active file system at a previous time”.

(c) “Applying Sekido to an Epsido or WAFL file system would not be obvious to one skilled in the art”.

(d) Sekido reference does not teach “a logical OR operation”.

The Examiner respectfully disagrees for the following reason:

Per (a), Sekido is directed to the snapshot management system for creating a snapshot that holds the contents of the files at a specific point in time for each of the nonvolatile storage devices and stores the created snapshot into the corresponding nonvolatile storage device (Abstract).

Sekido discloses a snapshot of a file system in a “system disk” (col. 13, lines 14-15).

The “system disk” in Sekido is “a disk on which the operation system code needed for the operation system to operate” (col. 13, lines 19-21), or “if the operating system is started using the snapshot image in the system disk” (col. 13, lines 15-16).

Since Sekido’s reference discloses a snapshot holding the contents of the file system and storing the created snapshot into a “system disk”, the writing buffer, which includes the local address tag block, and the buffer management table in the file system snapshot section must be stored in the file system as the CPU can only process data in the buffers, and the buffers are created within the system memory so that they contain the information needed to access and locate the file systems. Accordingly, these elements are equivalent to the claimed active map, which is included in a consistency point recorded in the file system.

Per (b), as mentioned above, Sekido’s reference discloses a snapshot of a file system, and Fig. 25 shown plurality of file system versions as, the latest file system, file system for SS1, file

Art Unit: 2167

system for SS2, wherein, the SS1, SS2 (i.e. active map) in the file system for SS1, and file system for SS2 respectively.

Furthermore, Sekido teaches an active map (i.e. the next snapshot is created) used by said plural files in said active file system at a previous time (i.e. using the system started from an old snapshot).

Per (c), applicant seems to be suggesting that Sekido would not operate properly if combined with Hitz, the examiner, however, recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Sekido directs to a system a and method including a snapshot management for creating a snapshot contents of the files in the file system at a specific point in time (i.e. consistence point) for each of the nonvolatile storage devices and stores the created snapshot into the corresponding nonvolatile storage device.

Hitz directs to a method for maintaining a file system in a consistent state of a file system by using snapshot, and Write Anywhere File System Layout (WAFL). Hitz does not disclose this WAFL with any restriction (See col. 5, lines 36-45).

Because the two references are concerned with the same solution to the problem of efficiently maintaining a consistent file system and for creating read-only copies of the file system (which is similarly to the claimed invention, see Specification, page 3, lines 15-17), there

Art Unit: 2167

is an implicit motivation to combine these references. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Hitz's teaching would enable users of Sekido's system to avoid new data written to the active file system from overwriting old data that is a part of a snapshot, and thereby, enable very flexible data sheltering that allows the update of snapshot.

Per (d), the examiner has objected to claims 24, 34, and 44; therefore, applicant's arguments are moot.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2167

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene, can be reached on (571) 272-4107. The fax number to this Art Unit is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Miranda Le
July 07, 2005



CYNTHIA ROBINSON
PRIMARY EXAMINER